

Space News Roundup

Vol. 26 No. 9

May 8, 1987

National Aeronautics and Space Administration

News Briefs

Commercial pact signed

NASA has signed the first United States government agreement transferring commercial operations of an expendable launch vehicle (ELV) to the private sector. The agreement with General Dynamics Space Systems Division, San Diego, for the Atlas/Centaur launch vehicle transfers to General Dynamics authority to use NASA-controlled facilities and capabilities for commercial manufacture and launch of the Atlas/Centaur. Production and operating rights are transferred to General Dynamics, and the company will reimburse the government for any direct costs the government incurs as a result of its commercial activities.

Planetary dates set

NASA and the European Space Agency (ESA) have decided to launch the joint Ulysses mission to the Sun in October 1990 using the Space Shuttle. The Galileo mission to Jupiter, then, will be launched from the Space Shuttle in October/November 1989. The launch sequence decision by NASA Administrator James C. Fletcher and ESA Director General Reimar Luest is designed to optimize data return from the important scientific missions. Galileo, which has a long trip time, will begin its return one year later than Ulysses.

Joint mission OK'd

NASA and the French Space Agency, the Centre National d'Etudes Spatiales (CNES), have signed a memorandum of understanding for a joint satellite oceanographic mission. The mission, an ocean topography experiment called TOPEX/POSEIDON, is planned for a late 1991 launch. The flight will provide oceanographers with their first opportunity to observe ocean circulation on a global scale. The mission combines similar separate missions. NASA will provide a spacecraft bus, a radar altimeter, a microwave radiometer and tracking systems. CNES will provide a dedicated Ariane launch, a radar altimeter and a tracking system.

System tests set

Researchers at the Jet Propulsion Laboratory (JPL) are conducting the first in a series of technology-related tests expected to play a major role in development of a mobile satellite communications system for the 1990s. Scientists and engineers of the Mobile Satellite Experiment (MSAT-X) are testing antennas and other hardware that will support development of future mobile satellite systems that would extend mobile telephone service and provide data service systems in remote areas throughout the country. The system consists of one or more satellites in geosynchronous orbit and network management centers on the ground. In Colorado field tests, researchers are using a van outfitted as a mobile laboratory to test mechanically steered antennas designed to be mounted on vehicle roofs.

Mars workshop set

As a contribution to Mars Rover Sample Return Science Working Group (MRSR SWG) activities, the Lunar and Planetary Sample Team (LAPST) is convening a workshop Nov. 16-18, 1987, on the scientific questions to be addressed by such a mission. The workshop will focus on sample return aspects. Attendance will be by invitation only and will be limited to about 60 participants. Those wishing to participate should submit a letter of intent to the Lunar and Planetary Institute Projects Office by June 1. Limited financial assistance will be available in cases of financial hardship.



Marcia Taylor, a Lockheed employee in the Tracking and Communications Division, took a white knuckle ride across the finish line during the InterCenter Run recently. Employees of the Division participated in the run with the goal of winning the prize for the highest number of participants at the division level. Pushing Taylor are, left to right, Lorie Marshall, Marc Sommers and Yvonne Yih, all of Lockheed.

NASA issues Station RFP

The nation's aerospace industry is expected to respond by July 21 to the detailed request for proposals (RFPs) issued by NASA April 24 for design and construction of the Space Station.

NASA has asked industry offerors to submit proposals for each of two options. The first option is the phased program that would lead to permanent manned operations in space by 1996. The second option is for construction of the enhanced-capability Space Station dual-keel configuration.

Under option one, the first phase of the Station would include the U.S. laboratory and habitation modules, four resource nodes, the U.S. polar-orbiting platform and experiment provisions outside the modules. The initial configuration would also include elements to be provided by the international partners in the program, Canada, Japan and the European Space Agency.

For the first phase, NASA has specified the following major considerations:

- 75 kilowatts of power will be available on orbit before any foreign modules are brought to the Station. The power will be provided by photovoltaic solar arrays. NASA will continue preliminary work on the more advanced solar dynamic power system to retain the ability to incorporate that technology in the second phase of the program.
- Offerors are to submit proposals based on the following major program dates: January 1994 for the first element launch, January 1995 for man-tended capability, and the fourth quarter of 1995 for permanent manned capability.
- The U.S. laboratory will be used to conduct work in life sciences only where it relates to

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Brandenstein is new Chief Astronaut

Four astronauts have been assigned to key posts in the Flight Crew Operations Directorate and Astronaut Office at JSC.

Newly assigned are Henry W. Hartsfield as Deputy Director for Flight Crew Operations; Daniel C. Brandenstein (Capt., USN) as Chief of the Astronaut Office; Karol J. Bobko (Col., USAF) as Assistant for Operations to the Director of Flight Crew Operations; and Dr. Steven A. Hawley, Deputy Chief of the Astronaut Office.

Hartsfield was formerly Deputy

Chief of the Astronaut Office and succeeds Brandenstein as Deputy for Flight Crew Operations. The organization includes as its major elements the Aircraft Operations Division, the Vehicle Integration Test Office, the Payload Specialist Liaison Office and the Astronaut Office.

Hartsfield's space flight experience is as Pilot of *Columbia* on STS-4 in June and July 1982, Commander of *Discovery* on 41-D in August 1984, and Commander of *Challenger* on STS 61-A in October 1985.

Brandenstein replaces John W. Young, Chief Astronaut since 1974, who recently was appointed Special Assistant to Center Director Aaron Cohen. Brandenstein has served as Deputy Director of Flight Crew Operations for the past year. He flew as Pilot of *Challenger* on STS-8 in August 1983 and as Commander of *Discovery* on STS 51-G in June 1985. He also was capsule communicator in Mission Control during the STS-1 mission in April 1981.

Bobko's newly created position of Assistant for Operations carries

responsibility for overseeing issues in the Space Transportation System during the return to flight and the subsequent period of increasing operational activities.

Hawley replaces Hartsfield as Deputy Chief of the Astronaut Office. He flew as a Mission Specialist on STS 41-D with Hartsfield in 1984 and aboard *Columbia* on STS 61-C in January 1986.

The appointments, effective immediately, do not remove the astronauts from flight status, officials said.

NASA honors IBM-Houston

IBM's Federal Systems Division of Houston is one of two NASA contractors selected to receive the first NASA Excellence Award for Quality and Productivity.

Also honored was Martin Marietta Michoud Aerospace, New Orleans. Both companies were selected for the "exemplary standards in the products and services they provide."

The announcement was made by NASA Administrator Dr. James C. Fletcher at the annual meeting of the American Institute of Aeronautics and Astronautics.

Out of seven companies considered for the award, two were JSC contractors. In addition to IBM, Lockheed Engineering and Management Services Co., also was a finalist in the award process.

In his keynote address, Fletcher

said, "President Reagan has made improved productivity and quality a major thrust in our national efforts to maintain world competitiveness. The 1986 recipients of the NASA Excellence Award can be proud that their work is helping to achieve that goal."

IBM and Martin Marietta were judged on their measurable and verifiable accomplishments in quality and productivity, employing factors such as product and or service performance, attainment of cost and schedule objectives and comprehensive reporting and communications systems.

NASA will highlight the award recipients throughout 1987 in two or more NASA-sponsored seminars and conferences, to be conducted by George Rodney, Associate

Administrator for Safety, Reliability, Maintainability and Quality Assurance, and C. Robert Nysmith, Director of Productivity Programs.

Other finalists were Boeing Computer Support Services, Inc., Huntsville, Ala.; Calspan Corp., NASA/Ames Operations, Moffett Field, Cal.; Rockwell International Rocketdyne Division, Canoga Park, Cal.; and Spar Aerospace, Ltd., Remote Manipulator Systems Div., Ontario, Canada.

The objective of the Excellence Award is to stimulate awareness of the importance of quality and productivity to the Agency and to the nation in international economic competition. The awards are administered by NASA in conjunction with the American Society for Quality Control.

Astro selection nearing an end

Five additional prospective astronaut candidates were at the center the week of April 28 to May 1 as the latest astronaut selection process neared its final stages.

The five were here undergoing testing, interviews and indoctrinations, as have 112 other prospective candidates since March. A total of 117 people were interviewed in six groups, with each group spending at week at JSC.

Selections are expected in a matter of a few weeks, with successful candidates reporting to JSC during the summer. A one-year period of candidacy precedes appointment as an astronaut.

Bulletin Board

IEEE videoconference set for May 13

Computer integrated manufacturing will be the topic of a video conference to be presented May 13 by the Galveston Bay Section of the Institute of Electrical and Electronics Engineers. The presentation will introduce architectural framework models for computer integrated manufacturing design and implementation. Views and case studies will be presented for large, medium and small systems. Advanced registration is required. The videoconference will run from 9 a.m. to 3 p.m. at the Gilruth Recreation Center. For more information, call Ray Baker at x30078 or Dr. Zafar Taqvi at 333-6544.

Station progress is Lunch and Learn topic

Clarke Covington, Manager of the Space Station Projects Office, will discuss recent developments in the program during a Lunch and Learn presentation May 26. The session, sponsored by the Space Systems Technical Committee, will begin at 11:30 a.m. in the Bldg. 3 Cafeteria. For more information, call Andre Sylvester at x31537.

Armed Forces Day Medal Run planned

An Armed Forces Day Medal Run, sponsored by the Gilruth Recreation Center, the JSC Running Club and the JSC Air Force detachment, will be held at 7:30 a.m. May 16 at the Rec Center. A large, 4-inch, die cast medal on a red, white and blue neck ribbon will be awarded to each participant. There will be no age group awards. Registration at the Rec Center is \$3 until May 16, \$4 the morning of the race. The first 50 entrants will receive their medals the day of the run; all other finishers will get their medals by mail within about three weeks, according to organizer Sammy Payne. For more information, call the Rec Center at x30303.

Stofan to speak at AFCEA luncheon

Andrew J. Stofan, Associate Administrator for Space Station, will be the guest speaker at the next Armed Forces Communications and Electronics Association luncheon. The luncheon will begin at 11:30 a.m. May 13 at the Sheraton Kings Inn on NASA Road One. The price is \$8 for members and \$10 for nonmembers. For more information, call Peggy Towns at 280-7312 or Carole Shannon at 280-7307.

Pressure systems to be highlighted in June

Safe handling of pressurized containers will be the theme for this year's observance of Pressure Systems Week June 1-5, as part of the annual effort to emphasize the dangers and safe operations of all pressure vessels. Three one-hour presentations will be held at the Gilruth Recreation Center, Room 206, at 8:30 a.m., 10:30 a.m. and 1 p.m. June 3. For more information, call the Pressure Systems Manager's Office at x35713.

EAA has Astros-Dodgers tickets

Tickets for the June 19 game between the Houston Astros and the Los Angeles Dodgers go on sale May 13 at the Bldg. 11 Exchange Store. The tickets, for field level seats in Section 232, are \$6 per person, a savings of \$2.50 over the regular price. There is a limit of 8 tickets per purchase, and a limited number of tickets are available. Other games for which the EAA will provide discount tickets this year will include the New York Mets July 10 and the Atlanta Braves August 15.

NMA to meet May 27 at Rec Center

The next meeting of the JSC Chapter of the National Management Association will be held May 27 at the Gilruth Recreation Center. The meeting will begin with a social hour at 5 p.m., followed by a dinner meeting at 6 p.m. The guest speaker will be Robert B. Young Jr., President and Chief Executive Officer of Lockheed Engineering and Management Services Co., and a Vice President of the Lockheed Corp. Young is conducting seminars on leadership. For more information, call Peggy Carlisle at the Nova Bldg., 280-3690.

BAPCO meets May 19

The next meeting of the Bay Area PC Organization, BAPCO, will be held at 7:30 p.m. May 19 at the Holiday Inn on NASA Road One. The local IBM PC users' group is open to all persons with an interest in microcomputers. BAPCO meets regularly on the third Tuesday of each month. For more information, call Earl Rubenstein, x33124, or Jack Calvin, 326-2983.

Gilruth Center News

Call x30304 for more information

Softball tournament — A mixed softball tournament will be conducted May 16 and 17. Entry fee is \$95. Registration deadline is May 13.

SCUBA — The next NAUI-certified scuba course begins June 8. For details, call the Rec Center.

Weight safety — This is a required course for those employees wishing to use the Rec Center weight room. The class will be held May 21 from 8 to 9:30 p.m.

Defensive driving — Learn to drive safely and qualify for a 10% reduction in auto insurance rates. All-day Saturday class meets June 20.

Aerobics — Class meets Tuesdays and Thursdays from 5:15 to 6:15 p.m. for 8 weeks beginning May 8. Cost is \$24 per person.

Exercise class — The next exercise class meets at the Rec Center from 5:15 to 6:15 p.m. Mondays and Wednesdays for 8 weeks beginning May 11. Cost is \$24 per person.

Physical fitness - The next 12-week course of the JSC Physical Fitness Program will be held July 6 to Sept. 25 from 6:30 to 7:30 a.m. Monday, Wednesday and Friday.

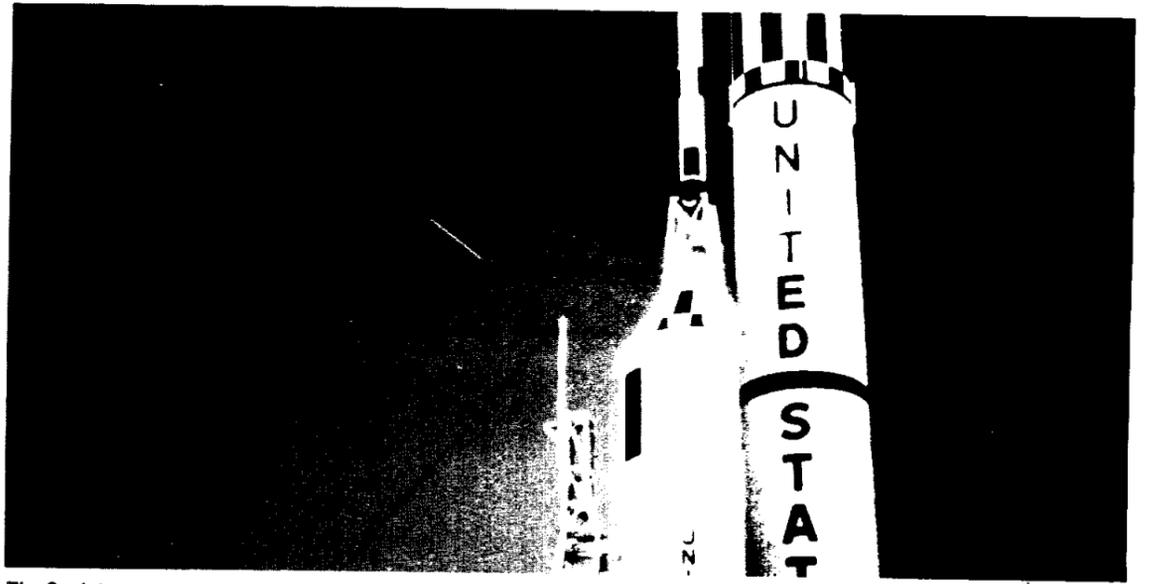
Soccer — Sign-up for co-ed soccer league begins at 6:30 p.m. May 18. All teams must field seven players, two of whom must be female. Sign-up of 11 teams is first-come, first served.

NASA
Lyndon B. Johnson Space Center

Space News Roundup

The **Roundup** is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for all space center employees. **Roundup** deadline is the first Wednesday after publication.

Editor Brian Welch
Assistant Editor Kelly Humphries



The Soviet space station MIR passes over Rocket Park at JSC April 17 in this time exposure photograph by astronomer Paul D. Maley. Docked to the MIR is the Kvant astrophysics module.

New badges to be issued

Identification badges for Civil Service employees throughout the Agency have been redesigned, and the new versions will be issued at JSC starting May 11.

In preparation for the issuing of new badges, the JSC Security Office has sent copies of Form 473, the NASA JSC Badge Request and Security I.D., to all offices, division level and above.

The forms must be completed for each employee before the new

badges can be issued. Old badges must be turned in when the new ones are issued, and security guards will confiscate all invalid badges after May 29.

Badges must be displayed in all buildings at JSC, Ellington Field and White Sands Test Facility, and must be worn at the waist or above. Service pins and other badges or pins may be attached to the badge clip, but not on the badge itself, said Security's Patti Hunter.

Badges will be issued from 8 a.m. to 3 p.m. in the following building lobbies on the following dates: May 11 and 12, Bldg. 1; May 13 and 14, Bldg. 4; May 15, Bldg. 31; May 18 and 19, Bldg. 30; May 20, Bldg. 45; May 21 and 22, Bldg. 17; May 26, Bldg. 44; May 27, Bldg. 419; May 28, Bldg. 273 at Ellington Field.

Badges will be issued at Bldg. 100 after May 28. For more information, call x32112.

Station RFPs include 4 work packages

(Continued from page 1)

microgravity materials research. Any non-compatible requirements, such as large centrifuges or animal holding facilities, would be provided for in an alternate module or resource node. Resource nodes are pressurized environmentally-controlled elements that link other elements, such as lab and habitation modules. They will serve as passageways for people and equipment, as well as providing space for command and control operations and systems support.

Development of the second phase of the program will be a priced contract option. Presently, NASA believes that the contract option, if exercised, would be accomplished beginning in 1991. The second phase would add the upper and lower truss structure, additional external payload attach points, the solar dynamic power system, a free-flying co-orbiting platform and a satellite servicing bay.

Industry also will submit separate proposals for an enhanced Station configuration which combines all the elements of the phased program. The enhanced configuration was the product of a two-year definition and preliminary design study which was completed in January.

The industry proposals and an independent technical and cost review of the Station to be performed by the National Research Council will provide the basis for a decision on the overall configuration, capabilities, cost and annual funding projection, and that will be

incorporated into the Fiscal Year 1989 budget.

Four separate RFPs were issued from the four NASA work package field centers. NASA plans to let contracts for each work package with November 1987 as the effective date of the contracts.

The work packages and NASA centers responsible are:

- Work Package One, Marshall Space Flight Center: Detailed design, construction, test and evaluation of two pressurized modules, one outfitted with systems for use as a microgravity research facility and the other to serve as a habitation module for the crew; three logistics transport systems, such as orbital maneuvering vehicles; four resource node structures; the environmental control and life support system; the internal thermal management system and internal audio and video systems.

- Work Package Two, Johnson Space Center: Detailed design, construction, test and evaluation of the structural framework to which the various elements of the Station will be attached; resource node outfitting; two airlocks; subsystems such as propulsion, external thermal management, communications and tracking, data management, guidance, navigation and control, and external audio and video; interface between the Station and the Shuttle; assembly and external systems maintenance; and provisions for extravehicular activities. JSC also would have responsibility for the upper and lower truss structures and the mobile base for

the Canadian mobile servicing system under the second phase of the program.

- Work Package Three, Goddard Space Flight Center: Detailed design, construction, test and evaluation of the automated free-flying polar platform and provisions for instruments and payloads to be attached to the Station. Elements provided for under the second phase of the Station program would include the co-orbiting free-flying platform; additional external payload attach points; and the satellite servicing facility. Goddard also is responsible for building the Flight Telerobotic System, a device that will be capable of manipulations in space such as assembly and payload servicing.

- Work Package Four, Lewis Research Center: Detailed design, construction, test and evaluation of the electrical power generation, conditioning and storage, and power management and distribution systems.

The Kennedy Space Center will be responsible for preflight and launch operations and will be involved in logistics support activities. KSC will develop and outfit the launch site facilities and ground support equipment and will develop transportation equipment for moving large elements between work sites and the launch site.

The Jet Propulsion Laboratory will be responsible for program requirements and assessment, and the Langley Research Center will be responsible for evolution planning for the Station.

Safety Panel encourages employee input

NASA's Space Flight Safety Panel is reminding employees that it encourages their input in the effort to safely return the Shuttle to flight status.

The panel was established by NASA Administrator James C. Fletcher in September 1986 to promote flight safety awareness among all NASA and contractor employees.

Four members make up the panel:

Bryan O'Connor, NASA Astronaut, Johnson Space Center, Chairman of the panel. (713) 483-1028, or FTS 525-1028.
Larry Bourgeois, Flight Director,

Johnson Space Center. (713) 483-5437, or FTS 525-5437.

Norm Carlson, Chief of the Vehicle Processing Division, Kennedy Space Center. (305) 867-7795 or FTS 823-7795.

Harry Craft, Deputy Manager of the Payload Projects Office, Marshall Space Flight Center. (205) 544-5418, or FTS 824-5418.

Fred Gregory, Chief of the Operational Safety Branch, NASA Headquarters, participates in an advisory capacity on the panel. (202) 453-8910 or FTS 453-8910.

The panel meets periodically at the NASA manned space flight centers and at major contractor facilities to discuss flight safety

issues. The panel, as part of the overall NASA safety process, reports to and advises the senior officials responsible for manned space flight and for safety and quality assurance.

The panel encourages all NASA and contractor employees, at all levels, to utilize their safety organizations to detect, report, and eliminate hazards which could adversely affect the accomplishment of manned space flight objectives. The panel is receptive to any ideas that will enhance safety.

Employees may call any member or advisor during normal working hours.



Mission ops team makes grade

JSC's mission operations team passed its recent 56-hour test with high marks, overcoming 180 malfunctions to successfully complete every aspect of the simulated STS 61M(T) flight.

"I'd give them an A-plus," said Stokes McMillan, lead Simulation Supervisor (SimSup). "As far as I'm concerned they're ready for flight. We threw a lot of stuff at them and they handled it all well."

Among the many problems encountered were a failed engine during ascent, a satellite tilt table that had to be manually positioned through an EVA, and faulty deorbit burn.

"I think Stokes and his boys did a super job getting the simulation to work and coming up with a realistic simulation that put everybody through their paces," said Commander Mike Coats.

Weightless Environment Training Facility (WETF) operators got a workout when two crew members simulated an EVA to deploy the Tracking and Data Relay Satellite when its tilt table stuck far short of the needed 45 degrees.

"During the deploy, with the EVA going on at the same time and trying to crank up the satellite and get it deployed was probably the most hectic as far as the crew was concerned," Coats said.

"There were very few things that didn't get exercised," said lead Flight Director Chuck Shaw. "I believe it was an unqualified successful demonstration showing that we are ready to get ready to go fly STS-26."

Snapshots of the action included, clockwise from above: Sim Team tormentors busy in the Simulation Control Area; Mission Specialist Anna Fisher preparing for a long stay in the Fixed-Base SMS; Ascent/Entry Flight Director Ron Dittmore talks to Tommy Holloway, Chief of Flight Crew Operations, and EECOM R. John Rector; SMS instructors Tony Patino Capt. Jim Burton monitor the crew's progress; and Mike Coats, John Blaha, Jim Buchli, Bob Springer and Anna Fisher get ready to earn their carrots, symbols of good work that are doled out by their SMS team.



Roundup Swap Shop

All Swap Shop ads must be submitted on a JSC Form 1452. The forms may be obtained from the Forms Office. Deadline for submitting ads is 5 p.m. the first Wednesday after the date of publication. Send ads to Roundup, AP3, or deliver them to the Newsroom, Bldg. 2 Annex, Room 147. No phone in ads will be taken.

Property & Rentals

Sale: Student housing at Texas A&M, 3-2, W/D, fenced, furnished, 5 mi. from campus, \$68,000. Jay, 474-2622.

Rent: El Dorado Trace condo for 6 mos., furnished, 1 BR, study, W/D, color TV, pool, exercise room, jacuzzi, \$420/mo. 280-3649 or 480-5656.

Sale: South Austin condo in small landscaped development, 2 BR, premium carpet, built-in bookshelves, all kitchen appliances, fan, \$37,950. 482-7910.

Sale/rent: Galveston Island condo, 2 BR, pool, tennis, 72nd and Seawall, 2 day min. Clements Jr., 474-2622.

Sale/lease: El Dorado Trace condo, 2-2.5-2, fully furnished, \$595/mo. or \$54,500. 538-2262.

Lease: 3-1-5-2 townhouse, quiet corner on cul-de-sac, fenced, storage space, covered parking for 2, \$450/mo. plus deposit. 486-4466.

Rent: Galveston Gulf-front Victorian condo, sleeps 6, fully furnished, 2 pools, 3 whirlpools, tennis courts, affordable rates. 480-5270.

Lease: Friendswood/Heritage Park, new section, 3-2-2, FPL, large kitchen, fenced, refrig., new paint, carpet, \$525/mo. 482-6609.

Lease: Piper Meadow/CLC, 3-2-2, FPL, fenced, new paint, dining room, \$525/mo. 482-6609.

Rent: Webster Sterling Knoll 3-2-2, W/D, refrig., \$600/mo. David Gaines, 479-3343.

Sale: League City 4-2-2, \$3,000 down, assume 9.5% VA loan, pool avail. x34327 or 538-2107.

Sale: Galveston Island canal lot w/concrete bulkhead, exclusive west-end area, unobstructed view of West Bay, 481-1695 or 631-1212.

Lease: Friendswood Imperial Estates II, 3-2-2, den, fans, 3 walk-in closets, extra storage, \$550/mo. 480-0102.

Lease: Pineloch Apts., Webster, 1-1, W/D, FPL, ceiling fan, microwave, security alarm, 2 pools, 3 hot tubs, \$230/mo. plus electricity. Michelle, x31252 or 409-925-8714.

Sale: League City house, 3BR, cathedral ceiling in living/dining area, fenced, corner lot near pool, schools; \$42,500, \$450/mo. 488-6479.

Sale: LaPorte 3-1-5-2 house, no approval 9.5% assumable loan, alum. siding, new paint, remodeled kitchen, near Underwood/Spencer, 930-9348.

Sale: Pipers Meadow 3-2-2, doll house, 3 fans, extra insulation, high-efficiency A/C, decked attic storage, FPL, fenced, \$62,500 or \$8,500 and assume 11% fixed loan. 488-5906.

Sale: Shoreacres 3-2-2, half-acre wooded lot, fenced, knotty pine kitchen, dining room, beam ceiling master bedroom, walk to Galveston Bay, boat ramp, pier, \$69,500. Jon S., x30159 or 470-9267.

Rent: Barringer Lane 2 BR apartment, Webster area, \$340/mo., \$75 deposit, W/D hookup. 996-8113.

Lease: 1 BR Condo, W/D, covered parking, FPL, appliances, burglar alarm, fresh paint, new drapes, 2 wks. free, low deposit. Jim Briley, 282-1880 or 488-7901.

Lease: CLC condo, 2-1-2, W/D connections, fans, icemaker, miniblinds, storage cable, new paint, floors, no pets. 488-0719.

Lease: Lake Livingston waterfront house, 3-2, sleeps 8, fully furnished, pier, ex. fishing, skiing, swimming, weekend or weekly rates. 482-1582.

Lease: Condo on Clear Lake, 24-hr. security, pool, tennis, 2-1, \$400 plus utilities. 480-5583 or 482-7156.

Sale: Univ. Trace townhouse, 2-2.5-2CP, all appliances, FPL, security system, under \$50,000, assumption. 333-4044.

Sale: East Huntsville, 10 acres on the hill in Acorn Hill Estates, \$3,000/acre, assume 8.5% note. 333-4044.

Rent: Crystal Beach, TX, beachfront house, large deck, screened porch, sleeps 6-8, A/C, all furnishings except linens, week or weekends, families only, M. Edwards, 282-4017 or 409-684-5827.

Sale: Heavily wooded lot, view of Taylor Lake, all utilities available. \$19,500. 474-3181.

Lease: Baywind II condo, 1BR, 1Ba, FPL, all appliances, pool, game room, tennis, Jim Wiltz, x39009 or 944-0451.

Lease: CLC area, 2 BR condo, FPL, drapes, all kitchen appliances, utility closet, W/D connect., pools, outside storage, \$350/mo. 486-0315.

Lease: Univ. Green 2-2.5-2 townhouse, refrig., W/D, FPL, miniblinds, microwave, fans, small yard w/deck, \$650/mo. Cindy, x32998 or 486-8266.

Sale: Custom-built 3,100-sq.-ft. house across from water, large wooded lot, 4-2.5-2, open floorplan, many decorator features, \$149,000. Jerry, x38922 or 474-4310.

Sale/lease: Nassau Bay, 2,200-sq-ft.

townhouse, 3-2-2, study, new carpet, paint, large garage, deck, atrium, 20-ft. FPL, \$109,000 or \$890/mo. Jerry, x38922 or 474-4310.

Lease: West Galveston Island beach house, 3-2, furnished, day, week, month. Ed Shumilak, x37686 or 482-7723.

Sale: 420 acres, 1 mi. outside Center, TX, 300 acres timber, 120 acres pasture, half mineral rights. 482-4365.

Cars & Trucks

'69 VW Campmobile, pop top, versatile recreational/utility vehicle, runs well, good tires and battery. \$1,450. Steve, x38651 or 480-9715.

'68 Chrysler New Yorker, all power, A/C, ex. cond., \$895. 486-4466.

'78 Plymouth Volare SW, PS, PB, AC, AM-FM, cruise, tilt, one owner, \$1,600. Lee, 488-5906 or x38375.

'79 280ZX sports coupe, 5 spd., A/C, removable sunroof, tinted windows, back and side louvers, LeBra, new clutch, brakes, tires, AM/FM cassette, 64K mi., slight body damage, \$4,500 OBO. Kay, x34826 or 331-3379.

'80 Olds Omega Brougham, ex. cond., A/C, auto., V-6, all power, AM/FM/cassette, \$1,925. Carole, x32431 or 482-0065.

'80 Volkswagen Rabbit, diesel, 4 dr., 4 spd., A/C, ex. cond., \$1,630 OBO. Kaltenbach, 331-5751.

'73 Chevy pickup, V-8, camper top, dependable, \$1,000. Ben, 280-7553.

'85 Jeep Cherokee, 4 x 4 SW, 45K mi., V-6, PS, PB, AC, 5 spd., AM/FM/tape, tilt, roof rack, deluxe interior, good cond. \$9,200 OBO. 480-6805.

'84 GMC Jimmy, red/silver, running boards, tinted windows, dual antennae, JVC stereo, chrome wheels, good cond., \$7,450. Kelly, 409-925-5477 or x34632.

'86 Olds Delta 88, maroon, 13K mi., \$12,000 OBO. Ray, 30823 or 554-5434.

'74 VW Super Beetle, mechanically overhauled, needs body work, reliable, \$1,000. Lyunda, x38296.

'80 Plymouth Horizon, ex. cond., 43K mi., AM/FM/cassette, 337-6760.

'81 Chevy Malibu Classic, 4 dr., A/C, \$1,450. x30974 or 554-7083.

'75 Lincoln Towncar, new engine, 6K mi., PS, PB, A/C, \$1,600. 482-7775.

'72 Mobil Scout camper, sleeps 6, A/C, heater, new refrig., ex. cond., \$3,100; 6 x 9-ft. oriental type rug, light blue, \$40. Donna, x38511 or 479-1004.

'77 Impala, 2 dr., body good, interior so-so, 40K mi. on short block 350 V8, needs valve job, \$475. Diane or Jay, x36163 or 996-0869.

'81 Plymouth Reliant, 4 dr., auto., PB, PS, AM/FM, 67K mi., A/C, \$1,850. 482-3011 or x36643.

'78 Camaro, A/C, PS, PB, AT, tilt wheel, chrome custom wheels, clean, \$1,800 OBO. Bill Wood, x33838 or 554-2283.

'81 Mercury XR7, clean, low miles, A/C, PW, 6 cyl., \$2,990. x34557 or 485-1541.

'59 Mercedes Benz 220S, David, x35464.

'71 VW Super Beetle, good cond., owner maintained, engine overhauled, interior redone in '78, 140K mi., \$950. Janine, 282-3035 or 480-9590.

Boats & Planes

15-ft. Glastron GT-150 w/galvanized Sportsman trailer, extras, good cond. Keith, 488-5092.

18-ft. Riviera, 110hp Johnson, galvanized trailer, 1 yr. old, \$7,000. 941-3516.

'83 16-ft. Hobie Cat Special Edition, multi-colored sails, galvanized trailer w/custom boat box, many extras stored indoors, \$2,990. Carla, x30181 or 538-1148.

'86 Searay Seville 5.0, 16'6", 140HP Mercruiser I/O, 75 hrs. freshwater only, full instrumentation, AM/FM/cassette, custom fit marine cover, Sure Load Sportsman Trailer, owner financing, \$9,450. Janine, 282-3035.

18-ft. AMF Trac catamaran, galvanized trailer, \$3,850. 333-3056.

Cycles

Schwinn racing bicycle, brand new, Worldsport, \$200. x32281 or 331-3718.

Sears boy's 13-in. bicycle w/training wheels, fair cond., \$10. Sears boy's 15-in. bicycle, fair cond., \$10. 479-7437.

26-in. heavy duty bicycle, \$50. 473-2787.

Audiovisual & Computers

CDC 360K floppy disk drive, full HT, 1 yr. old, \$60; 135W XT power supply, couple mos. old, \$70. Charlie, x34647.

Intel 330 computer system, iSBS 86/30, three 8-in. DS/DD floppies and 32MB hard drive, 896K RAM w/8087 and iSBS 534, 4 additional serial ports, languages and utilities, Hazeltine Espirit terminal, C. Itoh 467 terminal (8 color,

640 x 480 4027 and VT100 comp., was \$24,000, now \$2,000. 488-4453.

XT Compatible computer clone, one 360K floppy and 12MB hard drive, 640K RAM, 6 pack clone card, software, printer coprocessor card, mono card, CRT, software, \$850. 488-4453.

IBM Displaywriter, Textpack 4 and 6, Reportpack, IBM 5218 Quality Printer, 50 diskettes, 5 ribbons, 3 print wheels, books, \$5,000. De Lynn, 331-6822.

AT&T 6300, mono, 640K RAM, 1 floppy, 31 MB hard disk, manuals, printer, stand, paper, surge protector, software, etc., \$1,750 OBO. Tim, 484-8191.

Apple McIntosh computer w/Image-writer, \$1,500, 482-0935.

Apple software, Bankstreet writer, \$15. 481-0468.

Radio Shack VHF 4-channel crystal-controlled pocket scanner, AC adapter, DC cigarette lighter adapter, 8 local police crystals, all \$65. Frank, x34752.

Commodore Amiga A1000 computer, 512K, monitor, Okidata Okimate 20 color printer, software, ex. cond., \$1,100. Joe, x31597 or 996-1667.

Apple IIC computer, mono monitor, software, \$750 OBO; 2nd drive, Image-writer printer, BO. Duane or Joann, 482-4949.

HP digital cassette driver for HP-41C w/HP-IL interface module, ex. cond., was \$675, now \$550. Carlos, x38879 or 554-7727.

Apple IIe, 128K, 2 drives, modem, software, \$900. Gordon, x30518 or 486-4403.

TI 99/4A computer, extended Basic, games. 488-2822.

Household

Estate sale: washer, refrig., oak DR set, BR sets, kitchen ware, sofa, occasional chair, wheel chair, etc. 482-3011.

Matching chair, footstool, 8-ft. couch, beige, \$40. 644-0315.

Sofa, 2 matching chairs, good cond., \$165. x31588 or 488-1326.

Energy efficient window-mount air conditioner, 9,800 BTU/hr., 110 hookup, used 4 summers in Oregon, ex. cond., \$100. 538-1905.

Fireplace screen, tools, etc., \$45; electric typewriter, \$50; assorted lamps, x30112 or 482-1317.

GE frost-free refrig., large capacity, bottom freezer, \$100. Harry, x31551.

GE window A/C unit, 18K BTU, good cond., \$100. Wayne, 935-3340.

25-in. Zenith console color TV, good cond., \$225. Wayne, 935-3340.

Oster kitchen center, 12 speeds, blender, mixer, meat grinder, dough maker, food crafter, ex. cond. 488-2822.

Full-sized mattress, box springs, \$60; king-sized set, frame, headboard, 6-ft. dresser, highboy, nightstand, BO. Nancy, 280-1992 or 480-8067.

Waste King stainless dishwasher, \$50. x30974 or 554-7083.

Small China cabinet, solid wood decorated doors, Barley twist legs, \$225; matching buffet w/ Barley twist legs, \$225; both dated 1870, both for \$425. 488-5564.

Four chairs, upholstered seats, matching, \$40; office chair, not swivel, \$25; long bench, upholstered, new, \$50. 488-5564.

Dansk-generation brown pottery, 8 5-piece place settings, 8 fruit, 8 regular soup, 8 rimless soup bowls, serving pieces, wooden articles, BO. Rose, 665-5193.

Credenza, ex. cond., \$100. 280-0909 or x34044.

Loveseat in earthtones, ex. cond., \$75; coffee table, \$25. 480-4890 or x32933.

Glass-top dining set, table, 4 chairs, good cond., \$100. 282-5529 or 538-2001.

Single bed and metal frame, \$30. 482-8827.

Photographic

Leica M3 lenses, Leitz, 35m, m/f3.5 w/view and range finder, leather case, \$150; Leitz 135mm/f4.5, leather case, \$100; M3 manuals, guide, textbook "The Leica Way," all \$15; Leitz flash, \$20. Samouce, x35053.

Retina IIIC lens set, Schneider 35mm/f4, Schneider 80mm/f4, wide angle/telephoto clip-on viewfinder, all \$100; Retina handbook, \$5; 10-in. (closed) tripod, \$20. Samouce, x35053.

Wanted

Want single 5.25-in. disk drive compatible w/TRS-80 color computer w/extended Basic. 554-6628.

Want toy steam engine, must work, 481-0468.

Want non-working color TV, VCR and Nikon camera equipment. 538-2001.

Want car pool from Sugar Land, First Colony, to JSC. Alice, x34263 or 980-4517.

Want male or female roommate in my 3-2.5 home in south Houston, household privileges, \$225/mo. Peggy, 941-5292.

Want set of left-handed golf clubs to rent for one-day local tournament, need not be full set. Sammy, x38000.

Want to buy good used 35mm camera w/flash for under \$40. 471-4183.

Want second roommate, 3 residents total, in 4 BR Nassau Bay house, 2 blocks out JSC main gate, \$200/mo. plus utilities. John, x31929 or 333-5238.

Want donations of old aquariums, hamster/guinea pig or bird cages, desk/goose neck lamps, heating pads to support local wildlife rehabilitation efforts for recovering baby birds and young animals, will pick up. 480-6431.

Want male or female roommate to share 3-2-2 house in Heritage Park behind Baybrook Mall, \$325/mo. plus utilities, references required. Luther, x39710 or 482-4252.

Want roommate to share 3-2.5 house in Meadowgreen, microwave, W/D, fans, etc., \$225 plus third utilities. Susan, 480-5752.

Want used SCUBA gear. Charlie, x30686 or 480-3260.

Want Baby Lock in good cond., reasonable price. x34181 or 332-0047.

Want gas logs, reasonable price. 332-0047.

Pets & Livestock

Two hand-raised, tame cockatiels, cage, BO. Brian, x32884 or 996-1507.

Free kittens, 337-1160.

German collie, free, good watchdog, well trained, good w/kids, 5 yrs. old. 534-3415.

Part Chow named Mozart, 1 yr. old, has shots, good watchdog, needs room to run. Mary, 480-8061.

AKC German shepherd pups, born Jan. 24, tan and silver markings. Billie, x38334 or 482-4365.

Lhasa Apsos, 4 males, AKC registered, Deer Park, 479-7531.

Musical Instruments

Completely restored antique 7-ft. grand piano, English Chapel, \$3,500. 488-4890 or x32933.

Baldwin piano, Hamilton, \$1,200. Irene, 996-0219.

Bundy B-flat clarinet, ex. cond., \$200. Bob, x32184.

Miscellaneous

Baby items, bumper pads for crib, \$5; Graco mechanical swing, \$15; baby girl clothes, 0-6 mos., all ex. cond. Carla, x30181.

Cookin' in the Cafeteria

Week of May 11 — 15, 1987

Monday — Chicken & Rice Soup; Wieners & Sauerkraut, BBQ Ham Steak, Steak Parmesan, Beef & Macaroni (Special); Green Beans, Carrots, Au Gratin Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday — Tomato Soup; Potato Baked Chicken, BBQ Spare Ribs, Mexican Dinner (Special); Squash, Broccoli, Ranch Beans, Spanish Rice.

Wednesday — Seafood Gumbo; Liver & Onions, Baked Turbot, BBQ Ham Steak, Baked Meatloaf w/Creole Sauce (Special); Beets, Brussels Sprouts, Green Beans, Whipped Potatoes.

Thursday — Beef & Barley Soup; Chicken & Dumplings, Corned Beef w/Cabbage, Smothered Steak w/Cornbread Dressing (Special); Spinach, Cabbage, Cauliflower au Gratin, Parsley Potatoes.

Friday — Seafood Gumbo; Pork Chop w/Yam Rosette, Creole Baked Cod, Tuna & Salmon Croquette (Special); Brussels Sprouts, Green Beans, Buttered Corn, Whipped Potatoes.

Week of May 18 — 22, 1987

Monday — Cream of Celery Soup; Braised Beef Ribs, Chicken a la King, Enchiladas w/Chili, Italian Cutlet (Special); Navy Beans, Brussels Sprouts, Whipped Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday — Beef & Barley Soup; Turkey & Dressing, Country Style Steak, Stuffed Cabbage (Special); Corn Cobbette, Okra & Tomatoes, French Beans.

Wednesday — Seafood Gumbo; Catfish w/Hush Puppies, Roast Pork w/Dressing, Pepper Steak (Special); Broccoli, Macaroni & Cheese, Stewed Tomatoes.

Thursday — Cream of Tomato Soup; Beef Tacos, BBQ Ham Slice, Hungarian Goulash, Chicken Fried Steak (Special); Spinach, Pinto Beans, Beets.

Friday — Seafood Gumbo; Liver & Onions, Deviled Crabs, Roast Beef w/Dressing, Tuna & Noodle Casserole (Special); Whipped Potatoes, Peas, Cauliflower.

AT BUILDING #3

On Wednesday we feature The Reuben: Corned Brisket, Swiss Cheese on a bed of Sauerkraut, Poupon Mustard on Rye and 1/4 Pickle. Delicious!

Monday and Thursday check out our French Dip Sandwich.